

μ A737E

COLOR TV CHROMA DEMODULATOR

FAIRCHILD LINEAR INTEGRATED CIRCUITS

GENERAL DESCRIPTION — The μ A737E is a monolithic silicon integrated circuit which demodulates the chroma subcarrier information contained in a color television video signal and provides color-difference signals at the outputs.

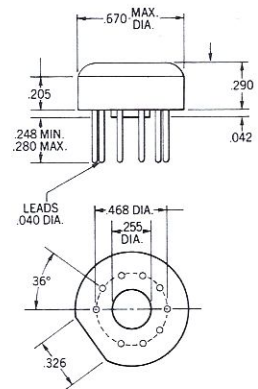
FEATURES

- DOUBLY BALANCED DEMODULATION
- INTERNAL COLOR-DIFFERENCE MATRIX FOR NTSC COLOR TV
- 10 VOLT PEAK-TO-PEAK $E_B - E_Y$ OUTPUT
- PLUGS INTO A STANDARD 9-PIN MINIATURE TUBE SOCKET OR SOLDERED INTO A PRINTED BOARD

ABSOLUTE MAXIMUM RATINGS

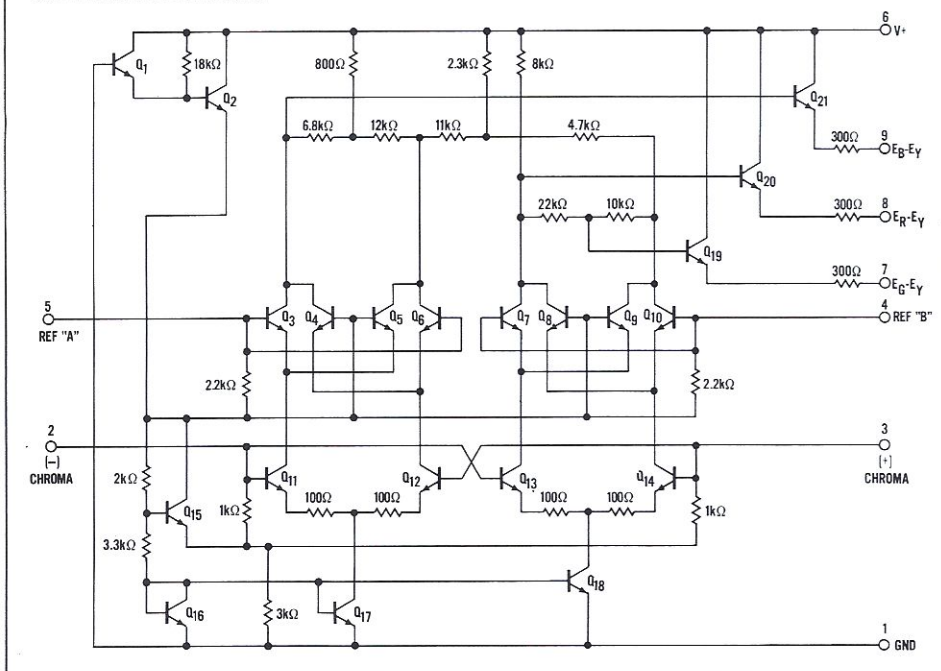
Supply Voltage	+28 V
Minimum Load Resistance	3 k Ω
Peak-to-Peak Reference Input Voltage	5 V
Peak-to-Peak Chroma Input Voltage	5 V
Internal Power Dissipation	450 mW
Operating Temperature Range	0°C to +70°C
Storage Temperature Range	-55°C to +125°C
Lead Temperature (Soldering, 10 seconds)	+260°C

PHYSICAL DIMENSIONS

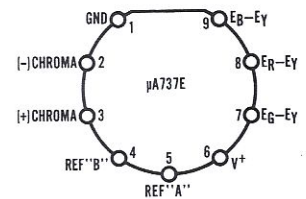


ORDER PART NO. U8F7737394

SCHEMATIC DIAGRAM



CONNECTION DIAGRAM (TOP VIEW)



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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, $V^+ = 24\text{ V}$, Test Circuit 1 unless otherwise specified)

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Supply Current	$e_C = 0$, $R_L = 1\text{ M}\Omega$	4.5	8.0	11.5	mA
	$e_C = 0$, $R_L = 1\text{ M}\Omega$, $T_A = 70^\circ\text{C}$		8.0	12.0	mA
	$e_C = 0$	16.5	21	25.5	mA
	$e_C = 0$, $T_A = 70^\circ\text{C}$		21		mA
Internal Power Dissipation	$e_C = 0$		320	410	mW
	$e_C = 0$, $T_A = 70^\circ\text{C}$		320	420	mW
DC Voltage at any Output Terminal	$e_C = 0$	12.5	14.7	16.5	V
	$e_C = 0$, $T_A = 70^\circ\text{C}$	12.0	14.3		V
Absolute Value of DC Difference Voltage between any Two Outputs	$e_C = 0$		0.2	1.0	V
DC Voltage at either Reference Terminal	$e_A = e_B = e_C = 0$		5.8		V
DC Voltage at either Chroma Terminal	$e_C = 0$		3.2		V
Reference Input Resistance	$e_C = 0$		1.7		k Ω
Reference Input Capacitance	$e_C = 0$		6.0		pF
Chroma Input Resistance			0.8		k Ω
Chroma Input Capacitance			5.0		pF
Peak-to-Peak Chroma Input Voltage	$E_B - E_Y = 5\text{Vp-p}$		0.4	0.7	V
Peak-to-Peak $E_R - E_Y$ Output Voltage	$E_B - E_Y = 5\text{Vp-p}$	3.5	3.8	4.2	V
Peak-to-Peak $E_G - E_Y$ Output Voltage	$E_B - E_Y = 5\text{Vp-p}$	0.75	1.0	1.25	V
Maximum Peak-to-Peak $E_B - E_Y$ Output Voltage	$e_C = 1.5\text{Vp-p}$	8.0	10		V
$E_B - E_Y$ Demodulation Angle	$E_B - E_Y = 5\text{Vp-p}$		3		Degrees
$E_R - E_Y$ Demodulation Angle	$E_B - E_Y = 5\text{Vp-p}$		109		Degrees
$E_G - E_Y$ Demodulation Angle	$E_B - E_Y = 5\text{Vp-p}$		259		Degrees
$E_R - E_Y$ Demodulation Angle relative to $E_B - E_Y$ Demodulation Angle	$E_B - E_Y = 5\text{Vp-p}$	101	106	111	Degrees
$E_B - E_Y$ Demodulation Angle relative to $E_G - E_Y$ Demodulation Angle	$E_B - E_Y = 5\text{Vp-p}$	96	104	112	Degrees
Highest Peak-to-Peak Demodulator AC Unbalance Voltage at any Output Terminal	$e_C = 0$		0.3	0.8	V

DEFINITIONS

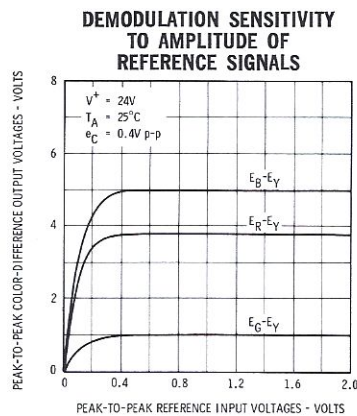
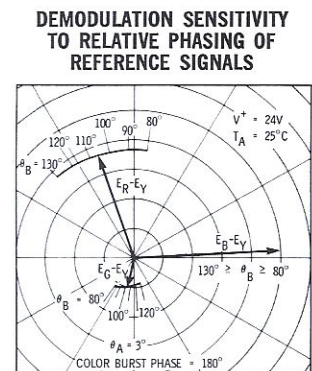
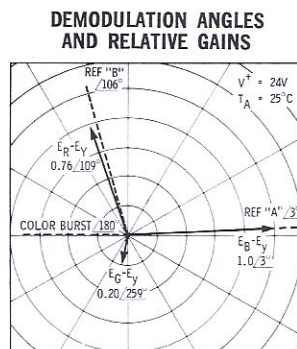
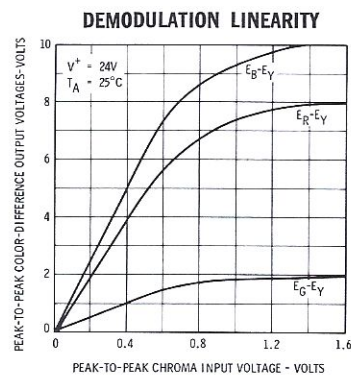
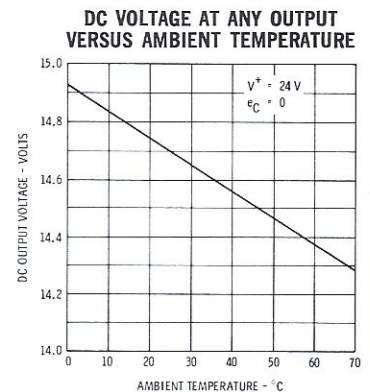
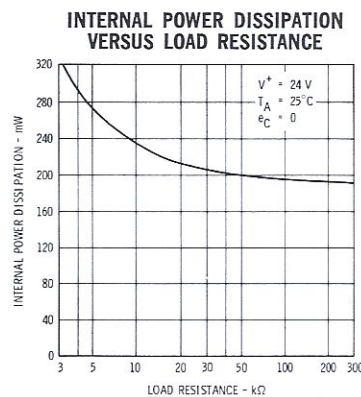
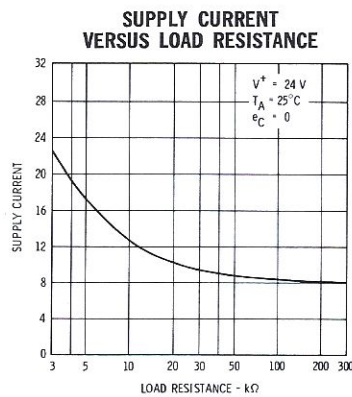
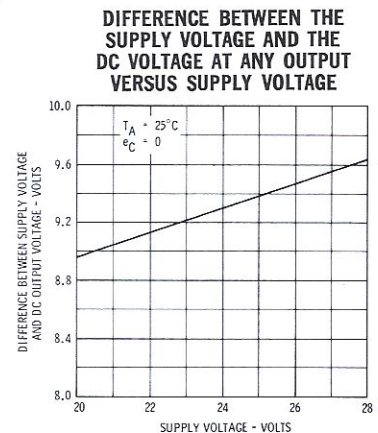
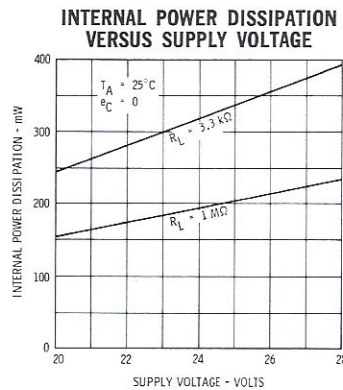
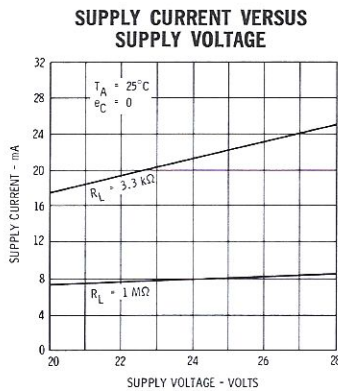
Color-Difference Demodulation Angle — A color-difference demodulation angle is defined as the instantaneous phase of the (+) Chroma input signal which produces the most positive voltage at the respective color-difference output with the phase of Reference "A" taken at 3 degrees and the phase of Reference "B" taken at 106 degrees.

(+) Chroma Input — A composite chroma signal containing the burst at a phase of 180 degrees is demodulated to produce specified color-difference demodulation angles when applied to the (+) Chroma input.

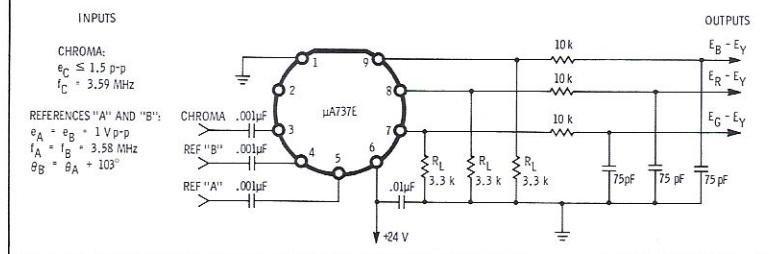
(-) Chroma Input — A composite chroma signal containing the burst at a phase of 0 degrees is demodulated to produce specified color-difference demodulation angles when applied to the (-) Chroma input.

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TYPICAL ELECTRICAL CHARACTERISTICS (TEST CIRCUIT 1 UNLESS OTHERWISE SPECIFIED)



TEST CIRCUIT 1



FAIRCHILD

SEMICONDUCTOR

A DIVISION OF FAIRCHILD CAMERA AND INSTRUMENT CORPORATION